

Monday 21th September 2020

Online Meeting

Streaming platform: Webex-events

9.30 a.m.

New advances in basic and applied virology

***ORGANIZERS: Prof. Raffaele De Francesco
Prof.ssa Chiara Zuccato***

***SPEAKERS: Prof. Andrea Grignolio,
Prof. Raffaele De Francesco
Prof. Luca Guidotti
Prof. Alberto Auricchio
Dr. Anna Kajaste-Rudnitski
Prof. Susan Weiss
Prof. Rino Rappuoli
Prof. Guido Silvestri***





New advances in basic and applied virology



PROGRAM

9:30 – 9:45 Welcome by Raffaele De Francesco and Chiara Zuccato

9:45 – 10:30 **Andrea Grignolio**

Vita-Salute San Raffaele University, Milano, Italy

Darwin, Viruses and Men: some historical remarks

10:30 – 11:15 **Raffaele De Francesco**

Department of Biomolecular and Pharmacological Sciences, University of Milano and Istituto Nazionale di Genetica Molecolare-INGM "Romeo ed Enrica Invernizzi, Milano, Italy

Hepatitis C Virus: from Discovery to Cure

11:15 – 12:00 **Luca Guidotti**

Division of Immunology, Transplantation and Infectious Diseases, San Raffaele Scientific Institute and Vita-Salute San Raffaele University, Milano, Italy

Pathogenesis of Hepatitis B Virus infection

Break

13:30 – 14:15 **Alberto Auricchio**

Department of Advanced Biomedicine, "Federico II" University, Naples, Italy, and Telethon Institute of Genetics and Medicine (TIGEM), Pozzuoli (Naples), Italy.

Gene therapy of inherited diseases with AAV vectors

14:15 – 15:00 **Anna Kajaste-Rudnitski**

San Raffaele Telethon Institute for Gene Therapy, IRCCS San Raffaele Scientific Institute, Milano, Italy

Retroviral vectors and innate immunity in hematopoietic stem cell gene engineering

15:00 – 15:45 **Susan R. Weiss**

Department of Microbiology, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, USA

Coronaviruses: history and replication

15:45 – 16:30 **Rino Rappuoli**

Chief Scientist, GSK Vaccines, Siena, Italy and Professor of Vaccines Research, Imperial College, London, UK

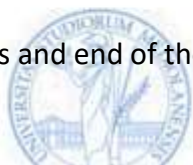
Vaccines 2020 and Covid-19 acceleration

16:30 – 17:15 **Guido Silvestri**

Emory Vaccine Center and Yerkes National Primate Research Center and Department of Pathology and Laboratory Medicine, Emory University School of Medicine, Atlanta, USA.

The challenge of curing AIDS

17:15 – 17:30 Final remarks and end of the meeting



New advances in basic and applied virology

Milan, 21 September 2020

Doctorate Course in Molecular and Cellular Biology
Department of Biosciences – University of Milan

Organized By:

Raffaele De Francesco, *Department of Biomolecular and Pharmacological Sciences, University of Milano and Istituto Nazionale di Genetica Molecolare-INGM “Romeo ed Enrica Invernizzi”*

Chiara Zuccato *Department of Biosciences, University of Milano and Istituto Nazionale di Genetica Molecolare-INGM “Romeo ed Enrica Invernizzi”*

Online Meeting/Webinar Streaming Platform: Webex events

9.30-9.45

Raffaele De Francesco e Chiara Zuccato

Welcome

9.45-10.30

Andrea Grignolio

Darwin, Viruses and Men: some historical remarks

Vita-Salute San Raffaele University, Milano, Italy

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Andrea Grignolio, Ph.D. in History of Science, teaches History of Medicine and Bioethics at Vita-Salute S. Raffaele University of Milan and at ITB-CNR. He studied at the Centre Cavailles of École Normale Supérieure in Paris (2004), was a Post-doctoral Fellowship at the Center for Philosophy and History of Science at Boston University (2006-2007), visiting scholar at the Office for History of Science and Technology at UC Berkeley (2009), and ARD2020 Research Fellow at the University François-Rabelais of Tours, France (2016-17). He is author of papers appeared on national and international journals, of the book Vaccines: Are they Worth a Shot? (Springer 2018), and editors of the books Giuseppe Levi (Medicina nei Secoli 30, 1, 2018) and Immunology Today. Three Historical Perspectives under Three Theoretical Horizons, (Bononia UP, 2010).

10.30-11.15

Raffaele De Francesco

Hepatitis C Virus: from Discovery to Cure

Department of Biomolecular and Pharmacological Sciences, University of Milano and Istituto Nazionale di Genetica Molecolare-INGM “Romeo ed Enrica Invernizzi, Milano, Italy

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Raffaele De Francesco is a molecular virologist who is internationally recognized primarily for his pioneering work on the hepatitis C virus (HCV) and for his key contributions to antiviral drug discovery. His early work in this area was pivotal in the identification of the molecular targets of the antiviral agents that are now in use for treating and curing chronic HCV infection. In recognition of his contributions to the development of highly effective HCV antivirals, the EMBL awarded RDF with the 2018 Lennart Philipson Award “for outstanding and validated contributions in translational research in human health”. His current research interests focus on the identification of novel strategies the prevention and treatment of viral infections and diseases. RDF has more than 140 papers published in peer-reviewed journal and a Scopus H-index of 67.

11.15 -12.00

Luca Guidotti

Pathogenesis of Hepatitis B Virus infection

Division of Immunology, Transplantation and Infectious Diseases, San Raffaele Scientific Institute and Vita-Salute San Raffaele University, Milano, Italy

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Luca G. Guidotti (LGG) is a virologist and viral immunologist internationally recognized for his pioneering studies on the mechanisms of viral clearance and organ damage during hepatitis B virus (HBV) infection. LGG spent more than 20 years as part of the faculty of The Scripps Research Institute (TSRI) in La Jolla, California and currently serves as Deputy Scientific Director of Ospedale San Raffaele (OSR) in Milan, Italy. LGG also serves as Full Professor of Pathology at the Vita-Salute San Raffaele University, Medical School (also in Milan, Italy). Over the years, LGG has published his work in prestigious scientific journals such as Cell, Nature, Science, Nature Medicine and his research activities have been financed by the National Institute of Health (NIH) and the European Research Council (ERC). LGG has been a member of numerous Study Sections at the NIH and the ERC for the allocation of funds to biomedical research and holds different SAB and board member positions. LGG is also inventor in many international patents.

Break

13.30-14.15

Alberto Auricchio

Gene therapy of inherited diseases with AAV vectors

Department of Advanced Biomedicine, "Federico II" University, Naples, Italy, and Telethon Institute of Genetics and Medicine (TIGEM), Pozzuoli (Naples), Italy.

Alberto Auricchio, MD is Professor of Medical Genetics at the Advanced Biomedicine Department of "Federico II" University of Naples, Principal Investigator and Director of Molecular Therapy Program at the Telethon Institute of Genetics and Medicine in Naples. His research is focused on gene therapy of retinal and metabolic diseases using adeno-associated viral vectors. Prof. Auricchio is author or co-author of more than 150 peer-reviewed publications on international scientific journals, and is an inventor of several international patents on the use of viral vectors for gene therapy. He is a member of the Editorial boards of Molecular Therapy, Translational Vision Science & Technology and Embo Molecular Medicine. Prof. Auricchio has notably received the 2006 Outstanding New Investigator Award of the American Society of Gene Therapy and has been nominated in 2007 "Cavaliere of the Italian Republic" by the President of the Italian Republic. In 2011 and 2016 respectively, Prof. Auricchio received the Coordinator and the Advanced Grant of the European Research Council; in 2019 he received the International Prize for Scientific Research "Arrigo Recordati".

14.15 -15.00

Anna Kajaste-Rudnitski

Retroviral vectors and innate immunity in hematopoietic stem cell gene engineering

San Raffaele Telethon Institute for Gene Therapy, IRCCS San Raffaele Scientific Institute, Milano, Italy

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Anna Kajaste-Rudnitski (AKR)'s training is in molecular virology and innate immunity. After studying innate immune responses and genetic susceptibility to flaviviral infections during my PhD at the Pasteur Institute, Paris, France, she continued her post-doctoral training in molecular virology at the San Raffaele Scientific Institute, OSR, Milan, Italy, working on Influenza and HIV. She then joined the San Raffaele Telethon Institute for Gene Therapy (SR-Tiget), OSR, in Milan as Project Leader in 2012, promoted Group Leader in July 2016. Merging her background in innate immunity and virology with acquired competences in hematopoietic stem cell (HSC) gene therapy, AKR's research focuses on identifying the antiviral factors and innate sensing pathways that prevent efficient modification of HSC with the aim of mitigating their effects using methods developed through a thorough understanding of their mechanisms of action. AKR currently holds an ERC

Consolidator Grant and received the Outstanding New Investigator Award from the American Society of Cell and Gene Therapy in 2019. Overall, her studies have significantly contributed to the emerging field of innate immune hurdles to gene therapy and provide insight for the development of innovative cell and gene therapies and to fight infectious and autoimmune diseases in the future.

15.00 -15.45

Susan R. Weiss

Coronaviruses: history and replication

Department of Microbiology, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, USA

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Susan Weiss obtained her PhD in Microbiology from Harvard University working on paramyxoviruses and did postdoctoral training in retroviruses at University of California, San Francisco. She is currently Professor and Vice Chair, Department of Microbiology and Co-director of the Penn Center for Research on Coronaviruses and Other Emerging Pathogens at the Perelman School of Medicine at the University of Pennsylvania. She has worked on many aspects of coronavirus replication and pathogenesis over the last forty years, making contributions to understanding the basic biology as well as organ tropism and virulence. Her work has focused on murine coronavirus (MHV), MERS-CoV and most recently SARS-CoV-2. Her work for the last ten years or so has focused on coronavirus interaction with the host innate immune response and viral innate antagonists of double-stranded RNA induced antiviral pathways. Her other research interests include activation and antagonism of the antiviral oligoadenylate-ribonuclease L (OAS-RNase L) pathway, and Zika virus-host interactions and pathogenic effects of host endogenous dsRNA.

15.45-16.30

Rino Rappuoli

Vaccini 2020 e l'accelerazione del Covid-19

Chief Scientist, GSK Vaccines, Siena, Italy and Professor of Vaccines Research, Imperial College, London, UK.

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Rino Rappuoli is Chief Scientist and Head External R&D at GSK Vaccines, based in Siena, Italy and Professor at Imperial College. Prior positions: head of Vaccine R&D at Novartis, CSO of Chiron Corporation, head for R&D at Sclavo. He earned his PhD in Biological Sciences at the University of Siena, Italy, and was visiting scientist at Rockefeller University and Harvard Medical School. He is elected member of US National Academy of Sciences (NAS), the European Molecular Biology Organization (EMBO), and the Royal Society of London. Awards received: Gold Medal by the Italian President, Albert B Sabin Gold Medal, Canada Gairdner International Award, European Inventor Award for Lifetime Achievement, and Robert Koch Award. He was nominated third most influential person worldwide in the field of vaccines (Terrapin). He has published more than 700 works in peer-reviewed journals. He introduced novel scientific concepts: genetic detoxification; cellular microbiology; reverse vaccinology; pangenome. Developed licensed vaccines: acellular pertussis containing a non-toxic mutant of pertussis toxin; first conjugate vaccine against meningococcus C; MF59, the first vaccine adjuvant after aluminium salts; meningococcus B; CRM 197 used as carrier in many conjugate vaccines. Dr. Rappuoli is among the world scientific leaders dedicated to the sustainability of global health.

16.30-17.15

Guido Silvestri

The challenge of curing AIDS

Emory Vaccine Center and Yerkes National Primate Research Center and Department of Pathology and Laboratory Medicine, Emory University School of Medicine, Atlanta, GA, USA.

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Guido Silvestri is currently a Georgia Research Alliance Eminent Scholar in Comparative Pathology, as well as Professor and Chair in the Department of Pathology and Laboratory Medicine at the Emory University School of Medicine. In addition, Dr. Silvestri is Director of the Division of Microbiology & Immunology at the Yerkes National Primate Research Center. Dr. Silvestri received his M.D. from the University of Ancona (Italy) in 1987, and after finishing his service in the Italian Navy (1989) he completed his training in Internal Medicine/ Allergology & Clinical Immunology in 1993. Soon after that, he moved to North America and became involved in basic and translational research studies of AIDS pathogenesis, prevention, and therapy, mostly using non-human primate models of HIV infection. In 2001, Dr. Silvestri received a Board Certification in Clinical Pathology upon completion of a residency at the Hospital of the University of Pennsylvania. Since 2001 Dr. Silvestri has directed an independent NIH-funded research program. He is currently the principal investigator or a co-investigator of eighteen NIH grants, including a prestigious R37 MERIT award, and he is involved in both the Consortium for Innovative AIDS Research (CIAR) in non-human primates, the Center for HIV/AIDS Vaccine Immunology (CHAVI), and the Collaboratory of AIDS Researchers for Eradication (CARE). Dr. Silvestri has authored or co-authored 256 peer-reviewed publications in this field, including numerous in the highest impact journals (*Nature*, *Cell*, *Science*, *Nature Medicine*, etc). He has given invited lectures at >120 different institutions and seminar series in 27 different countries. His work has been quoted >23,000 times, and has been presented in plenary sessions at all the major virology and immunology conferences worldwide. Dr. Silvestri is an Editor of the *Journal of Virology*, an Associate Editor of *PLoS Pathogens*, and a past-Editor of the *Journal of Immunology*. He served as Chairman or Standing Member in >50 study sections and advisory committees at the National Institutes of Health, the Canadian Institute for Health Research, the American Foundation for AIDS Research, the Australian Medical Research Council, the European Commission, and various others. Among his current appointments, Dr. Silvestri is President of the Scientific Council of the Agence Nationale pour la Recherche sur le SIDA, member of the Scientific Committee of the Conference on Retrovirus and Opportunistic Infections (CROI), member of the International AIDS Society Scientific Working Group on HIV Cure, and Co-Chaired the 9th International AIDS Conference in Paris, July 2017

17.15-17.30

Meeting Conclusion